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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,374	11/21/2006	Michael Koch	284115US0PCT	2104
22850	7590	12/17/2008		
OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER KEYS, ROSALYND ANN				
ART UNIT		PAPER NUMBER		
1621				
NOTIFICATION DATE		DELIVERY MODE		
12/17/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/566,374

**Applicant(s)**

KOCH ET AL.

**Examiner**

ROSALYND KEYS

**Art Unit**

1621

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE-08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Claims***

1. Claims 1-20 are pending.  
Claims 1-20 are rejected.

### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 13, 2008 has been entered.

### ***Claim Objections***

3. Claims 1-6 and 8-20 are objected to because of the following informalities: the limitation "pore volume of from 0.1 to 1 m/g" should be "pore volume of from 0.1 to 1 ml/g". . Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koch et al. (DE 101 52 525, which is equivalent to US 2004/0254408 A1) alone or in view of Fuchs et al. (WO 99/11615, which is equivalent to US 6,663,844 B1).

Koch et al. teach a process for removing trialkylammonium formate from methylolalkanes obtained by condensation of formaldehyde with a higher aldehyde comprising decomposing the trialkylammonium formate in the presence of a hydrogen-

containing gas at temperatures of from 100 to 250°C, preferably from 140° to 220°C and pressures above  $10^6$  Pa, preferably ranging from  $2 \times 10^6$  to  $15 \times 10^6$  Pa (see entire disclosure, in particular paragraphs 0012-0014, 0019, 0025, 0028 and 0031). Suitable catalysts include ruthenium (paragraph 0019). Suitable supports include  $\text{TiO}_2$  (paragraph 0019). The supported catalyst can be in the form of all known shaped bodies (see paragraph 0019). The decomposition can occur in the hydrogenation reactor, which is particularly economical (see paragraph 0027). Koch et al. teach the use of catalysts, which have surface areas and pore volumes within the claimed range (see paragraphs 0021, 0023 and 0025).

Koch et al. differ from the instant claims in that ruthenium on  $\text{TiO}_2$  is not the preferred catalyst. Nonetheless, the use of ruthenium on  $\text{TiO}_2$  is suggested.

The instant prima facie case of obvious is not obviated by Applicants showing in the specification because the results obtained therein do not appear to be unexpected. In viewing the Table of Koch et al. one having ordinary skill in the art would reasonably expect to obtain different formate conversions upon modifying the catalyst and/or catalyst support. In fact Koch obtained a higher formate conversion with the  $\text{TiO}_2$  support as compared with the  $\text{Al}_2\text{O}_3$  support, despite the fact that the same catalyst metal was utilized (see the Table on pages 3 and 4). Thus, the skilled artisan would have found it obvious to vary the catalyst and/or catalyst support by routine experimentation in order to provide the catalyst and/or catalyst support which gives optimum conversion/removal of trialkylammonium formate.

Koch et al. further differ from the claims in that Koch et al. do not disclose how the shaped catalyst bodies are obtained or the amount of metal to utilize. However, Koch et al. do teach that any known shaped bodies may be used (see paragraph 0019). Various metal contents are disclosed (see paragraph 0021).

Fuchs et al. teach a method of obtaining shaped materials which are useful as catalysts (see entire disclosure of US 6,663,844 B1, in particular column 1, line 36 to column 2, line 58). The shaped materials comprise titanium dioxide which may comprise up to 50% by weight of a metal such as ruthenium (see col. 1, lines 36-40 and 54-57). The shaped materials disclosed by Fuchs et al. have no soluble constituents under the reaction conditions, and are obtained by shaping the pyrogenic titanium dioxide into shaped articles and, before or after said shaping, treating the pyrogenic titanium dioxide with from ~.1 to 30% by weight, based on the pyrogenic titanium dioxide, of an acid in which pyrogenic titanium dioxide is sparingly soluble (see col. 1, lines 41-51).

One having ordinary skill in the art at the time the invention was made would have found it obvious to utilize the method of Fuchs et al. to obtain the shaped bodies of Koch et al., since Fuchs et al. teach that the shaped bodies obtained according to their process are useful as catalyst and Koch teach that any known shaped bodies can be used in their invention. The claim would have further been obvious because "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation

but of ordinary skill and common sense." KSR International Co. v. Teleflex Inc., 550 U.S.\_\_\_\_, 82 USPQ2d 1385, 1395-97 (2007).

Koch et al. further differ from the instant claims in that although Koch et al. teach applying the catalyst to the support, Koch et al. do not specify that the application is by impregnation.

It would have been an obvious matter of design choice to apply the catalysts of Koch et al. to the supports disclosed therein by impregnation or any known means of applying a catalyst to a support, since the Applicant has not disclosed that impregnation of the catalyst on the support solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with any known manner of applying a catalyst to a support.

### ***Response to Arguments***

8. Applicant's arguments filed November 13, 2008 have been fully considered but they are not persuasive.

The Applicants argue that none of the references cited suggest the now claimed impregnated catalyst, nor that an increase in the catalytic performance is obtained by the distinct combination of parameters as defined in the claims. Nor can the distinct combination of features be considered to be a result of routine experimentation.

These arguments are not persuasive because Koch et al. teach that ruthenium is a preferable catalyst and titanium dioxide is a suitable support (see paragraph 0019). Thus, one having ordinary skill in the art would have reasonably expected that the two

would be suitable for use in combination. Koch et al. also teach that varying amounts of catalyst may be utilized (see for example the Table on pages 3 and 4). Thus, one having ordinary skill in the art would have found it obvious to select the appropriate amount of catalyst need to obtain the desired purification. Further, changes in temperature, concentrations, or other process conditions of an old process do not impart patentability unless the recited ranges are critical, i.e., they produce a new and unexpected result. *In re Aller et al.*, (CCPA 1955) 220 F2d 454, 105 USPQ 233. The Examiner believes that the combination of Ru on TiO<sub>2</sub> would be a result of routine experimentation because it was known from the teachings of Koch et al. that the skilled artisan would have achieved different formate conversion by varying the catalyst and/or catalyst support utilized (see the Table on pages 3 and 4).

The Applicants submit on page 6 in paragraph 3 that the Examiner has discounted the data presented in the application.

The Examiner disagrees. The data was not discounted it just was not effective to show unexpected results.

The Applicants have presented data on pages 6, 7 and 9 of Applicants remarks which is to show that the instant catalyst is more efficient than the prior art catalyst. However, this data is not of probative value, since it is not supported by an appropriate affidavit or declaration. Objective evidence, which is intended to be evidence of unexpected results, must be factually supported by an appropriate affidavit or declaration to be of probative value. See, for example, *In re De Blauwe*, 736 F.2d 699,



705, 222 USPQ 191, 196 (Fed. Cir. 1984) ("It is well settled that unexpected results must be established by factual evidence.").

The Applicants argue that the catalysts of the cited art, especially those in DE'525 are not impregnated catalysts in the sense of the present invention.

This argument is not persuasive for the reasons given above.

For the above reasons, the Examiner believes that a prima facie case of obviousness has been shown and that the Applicants have not presented evidence sufficient to overcome said obviousness.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROSALYND KEYS whose telephone number is (571)272-0639. The examiner can normally be reached on M, W, F 8 am-3:30 pm; T, Th 5:30 am-7 am & 9:30 am-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Daniel Sullivan can be reached on 571-272-0779. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/ROSALYND KEYS/  
Primary Examiner, Art Unit 1621

December 10, 2008